

20ES016 - Ad-hoc Sensor Networks

UNIT - I

INTRODUCTION TO ADHOC NETWORKS: Overview and Communication aspects of Manet, Challenges, Topologies, Routing classification approaches, Proactive, Reactive, Position based and Other Routing Protocols

UNIT - II

BROADCASTING, MULTICASTING AND GEOCASTING IN MANETS: Introduction, The Broadcast Storm

Broadcasting in a MANET, Flooding-Generated Broadcast Storm, Redundancy Analysis, Rebroadcasting Schemes, Multicasting - Issues in Providing Multicast in a MANET, Multicast Routing Protocols, Comparison, Geocasting - Geocast Routing Protocols, Comparison..

UNIT - III

WIRELESS SENSOR NETWORK: Introduction, The Mica Mote, Sensing and Communication Range, Design Issues, Energy Consumption, Clustering of Sensors, Applications of Sensor Networks.

UNIT - IV

DATA RETRIEVAL IN SENSOR NETWORKS: Introduction, Classifications of WSNs, MAC Layer Design issues and Protocols, Routing Protocols of Sensor Networks - Network Structure Based Routing, Flat versus Hierarchical Routing, Multipath and Query Based Routing, Location-Based Routing, Transport Layer, High-Level Application Layer Support, Adapting to the Dynamic Nature of WSNs.

UNIT - V

SECURITY AND CONNECTIVITY TO OTHER NETWORKS: Introduction, Security in Ad Hoc Networks, Distributed Systems Security, Key Management, Secure Routing, Cooperation in MANETs, Security of Wireless Sensor Networks, Intrusion Detection Systems, Ingredients of a Heterogeneous Architecture, Protocol Stack, Comparison of the Integrated Architecture

TEXTBOOKS:

1. Carlos Cordeiro and Dharma P Agarwal, Ad hoc sensor networks-Theory and Applications by World Scientific publications March 2006
C. Siva Ram Murthy, and B. S. Manoj, "Ad Hoc Wireless Networks: Architectures and Protocols", Prentice Hall Professional Technical Reference, 2008

REFERENCE BOOKS:

1. Feng Zhao and Leonides Guibas, "Wireless Sensor Networks", Elsevier Publication - 2002.
2. Holger Karl and Andreas Willig "Protocols and Architectures for Wireless Sensor Networks", Wiley, 2005
3. Kazem Sohraby, Daniel Minoli, & Taieb Znati, "Wireless Sensor Networks- Technology, Protocols, and Applications", John Wiley, 2007.
4. Anna Hac, "Wireless Sensor Network Designs", John Wiley, 2003.